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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,989	01/31/2001	Hideki Morishima	2369.12210	2633
5514	7590	02/14/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H'A

Office Action Summary

Application No.

09/772,989

Applicant(s)

MORISHIMA ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on December 13, 2004, which has been entered into the file.
- By this amendment, the applicant has canceled claims 1-5 and 7-28 and has newly added claims 29-31.
- Claims 29-31 remain pending in this application.
- The rejections of claims 25-28 under 35 USC 112, first paragraph, set forth in the previous Office Action are withdrawn in response to applicant's amendment.

Response to Amendment

1. The amendment filed on **December 13, 2004** is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: **the newly submitted claim 29**, recites (1) the first lens array having "a plurality of lenticular lenses are periodically arranged in a *vertical* direction", (2) a second lens array is "a plurality of second lenticular lenses are periodically arranged in a *horizontal direction*", (3) mask member including **an** opening and a shield, and (4) **the newly submitted claim 30**, recites "in first optical system, a first lens array includes a plurality of *third* lenticular lenses periodically arranged in a *horizontal* direction". The specification **ONLY** gives the support for the first lens array to have a plurality of lenticular lenses **periodically arranged** in the **horizontal** direction, (please see all the Figures in the instant application, member 3). The lenticular lenses are *elongated* in the vertical direction but have *periodicity* in the *horizontal* direction. The specification also **ONLY** give the support for the second optical system to have lenticular lenses periodically arranged in **BOTH** horizontal and vertical directions. The specification also

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fails to provide that the mask only includes an opening and a shield, on the contrary there are *a plurality* of openings and shield regions on the mask. Furthermore, the specification fails to support that the first lens array (3) has *a plurality of third lenticular lenses* periodically arranged in a *horizontal* direction, (please see all of the figures).

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 29-31 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reasons for rejections based on the newly added matters are set forth in the paragraph above.

4. **Claims 29-31 are rejected under 35 U.S.C. 112, first paragraph**, as based on a disclosure which is not enabling. The *second* optical system includes a plurality of lenticular lenses periodically arranged in **both horizontal and vertical directions** and the mask having a *plurality* of openings and shields are **critical** or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The specification **does not** teach it is possible to use a plurality of lenticular lenses periodically arranged in *horizontal* direction **only** to make the image light form the plurality of image stripes elongated in the horizontal direction to pass the mask without being obstructed by the mask and without being distorted.

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Since the plurality of lenticular lenses arranged periodically in the *horizontal* direction, (such as member 5 of Figure 1), will make the image light generated from (12) forming *vertical* lines of image light that will be blocked partially by the shields of the mask, and also will *distort* the image since its is the horizontal line image that represent a particular image. Even if the second optical system includes the lenticular lens array (member 2 only), the image light being horizontal lines yet will be partially blocked by the shields of the mask. This stereoscopic image display apparatus therefore **cannot be workable** unless the second optical system includes a plurality of lenticular lenses arranged periodically **both in horizontal and vertical directions**, (as demonstrated in ALL of the figures in the specification).

Furthermore, the specification fails to teach that the stereoscopic image display apparatus is operable with just *an opening* and shield in the mask. If there is just one opening and one shield in the mask then the image light cannot be properly conveyed to the first optical system and properly viewed by the observer. No recognizable stereoscopic image will be able to form in this manner.

5. **Claims 30-31 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification and the claim fail to teach how could the first optical system having a first lens array including a plurality of first lenticular lenses periodically arranged in a vertical direction and a plurality of third lenticular lenses periodically arranged in a horizontal direction will enable the image light to reach the observation surface.

Claim Objections

6. **Claims 29-31 are objected to because of the following informalities:**

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(1). The phrase “a plurality of horizontally long images” recited in claim 29 is confusing and indefinite. The examiner believes this phrase should be more appropriately stated as “a plurality of horizontally elongated images”.

(2). The phrase “the optical characteristics of the first lens array in a vertical direction” recited in claim 29 is wrong since the first lens array (member 3 in all of the Figures) have no optical characteristics in the vertical direction, rather it converges light in the **horizontal** direction.

(3). The newly submitted claim 30 is confusing and indefinite since it is not clear what is considered to be the “a top of the second lenticular lenses” and “a top of the third lenticular lenses”. If there are a **plurality** of second lenticular lenses and third lenticular lenses, how can there be just one top? What is considered to be the top? Also How can a line connecting “all of the a plurality of pixels of image display element”? The scopes of the claim 30 are completely confusing.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Newly added claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Ezra et al (PN. 5,703,717) in view of the patent issued to Mashitani et al (PN. 5,663,831).

The newly added claims 29-31 are rejected under 35 USC 112, first paragraph, for lacking essential elements to disclose an operable image display apparatus. It therefore can only be examined briefly.

Ezra et al teaches a *three dimensional display apparatus* that is comprised of a *spatial light modulator* (23, Figure 7), serves as the *image display element* for displaying a *spatially multiplexed 2D* images having *interlaced* stripes of image for different view points, (please see column 5, lines 20-25), a *lenticular screen* (42) placed in front of the image display element and an *angular amplifying element* (33) having a *first lenticular lens array* (34) for focusing the image at a *plane diffuser* (35) and a *second lenticular lens array* (36) for converging the image light passes through the plane diffuser to *different viewing locations*, (please see Figures 4 and 7, columns 4-5). The *lenticular screen* (42) and the *first lenticular lens array* (34) together serve as the *second optical system* that condenses the stripe image to the plane diffuser and the *second lenticular lens array* (36) serves as the *first optical system* for directing the image light to viewing zone. The distance between the lenticular lens array (34) and the diffuser (35) is equal to the **focal length** of the lenticular lens array (34), (please see Figure 4). The lenticular lens array (34) is a *vertical* lenticular lens having periodic arrangement in the *horizontal direction*, (i.e. the plane of the page of Figure 4). The lenticular screen (42) implicitly forms the images of pixels on the plane diffuser in order for the three dimensional display apparatus to be operable. Ezra et al teaches that the stripes of images for different viewpoints are displayed on the spatial light modulator in an *interlaced* manner, which is a synthesized parallax image, (please see column 5, lines 20-25).

With regard to the feature concerning the first optical system includes a plurality of lenticular lenses arranged periodically in a vertical direction, this feature is not supported by the specification, which therefore cannot be examined here. With regard to the feature concerning the first lens array includes a plurality of third lenticular lenses periodically arranged in a horizontal direction, (claim 30),

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this feature is also not supported by the specification and not enabling which therefore cannot be examined here.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the plane diffuser has a mask pattern of openings and shields. However it is known in the art that a plane diffuser that placed in front of the display element *essentially* has a mask pattern of openings and shields as demonstrated by the teachings of Mashitani et al wherein a *diffusing plate* (3, Figure 5) has a *mask pattern of black regions and opening regions* (i.e. images forming regions). It would then have been obvious to one skilled in the art to make the plane diffuser of Ezra et al with mask pattern for the benefit of blocking unwanted light from the display to the observer, which therefore improves the image quality.

With regard to the features (claim 29) concerning the synthesized left eye and right eye images are of stripes image, Ezra teaches explicitly that the spatially multiplexed image comprises a plurality of 2D images such that the stripes of the images are interlaced. It is implicitly true that in order to create stereoscopic image, the interlaced stripes of images are of left eye and right eye image stripes being interlaced together, (please see column 5, lines 20-25). It is implicitly true that the stripe image has an elongated dimension in one direction than the other and the elongation direction is decided by the arrangement of the lenticular lens array.

Claim 31 cannot be further examined since the scopes of the claim are completely unclear.

Allowable Subject Matter

9. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references considered, none has disclosed a stereoscopic image display apparatus that is comprised of a *second* optical system, placed in front of an image display element that guides image light from the image display element to a *mask* member having a mask pattern of openings and shields, and a first

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optical system that converges the image light passes through the mask member to an observation surface. The **second** optical system has predetermined periodic lenticular lenses arranged in *both* of *horizontal* and *vertical* directions, *respectively*, in the order from the light incident side, and has an optical characteristics in both of the horizontal and vertical directions, *respectively*, that are different from each other (in the sense of horizontal and vertical direction). The first optical system includes a first lens array having a plurality of lenticular lenses arranged periodically in the horizontal direction.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. **Claims 29-31 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 39-41 of copending Application No.**

09/836,368. Although the conflicting claims are not identical, they are not patentably distinct from each other because for the following reasons: The instant application and the co-pending application both disclose a stereoscopic image display that is comprised of an image display device for displaying synthesized images, a second optical system for directing and forming the images from the display device on light transmitting sections and light shielding second formed within an optical *modulator* or on a *mask* (having opening and shielding regions for passing or shielding the image light), and a first optical system for collecting the image light from the light transmitting sections to an observation surface, (please see

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Figure 1 of the instant application and Figure 1 of the co-pending application). **Both** sets of the claims recite the synthesized parallax image are stripes images elongated in horizontal direction.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

12. Applicant's arguments with respect to the newly submitted claims 29-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

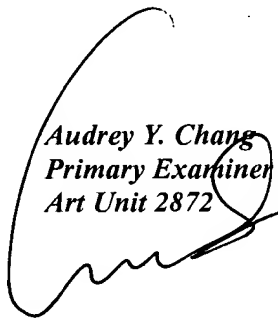
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Chang, Ph.D.



*Audrey Y. Chang
Primary Examiner
Art Unit 2872*